

Corrosion Glossary

immersion plating

Depositing a metallic coating on a metal immersed in a liquid solution, without the aid of an external electric current. Also called dip plating.

immunity

A state of resistance to corrosion or anodic dissolution of a metal caused by thermodynamic stability of the metal.

impingement corrosion

A form of *erosion-corrosion* generally associated with the local impingement of a high-velocity. Flowing fluid against a solid surface.

impressed current

Direct current supplied by a device employing a power source external to the electrode system of a *cathodic protection* installation.

inclusions

Particles of foreign material in a metallic matrix. The particles are usually compounds (such as oxides, sulfides, or silicates), but may be of any substance that is foreign to (and essentially insoluble in) the matrix.

incubation period

A period prior to the detection of corrosion while the metal is in contact with a corrodent.

industrial atmosphere

An atmosphere in an area of heavy industry with soot, fly ash, and sulfur compounds as the principal constituents.

inert anode

An *anode* that is insoluble in the *electrolyte* under the conditions prevailing in the *electrolysis*.

inhibitor

A chemical substance or combination of substances that, when present in the environment, prevents or reduces corrosion without significant reaction with the components of the environment.

inorganic

Being or composed of matter other than hydrocarbons and their derivatives, or matter that is not of plant or animal origin. Contrast with *organic*.

inorganic zinc-rich paint

Coating containing a zinc powder pigment in an *inorganic* vehicle.

intensiosstatic

See *galvanostatic*.

intercrystalline corrosion

See *intergranular corrosion*.

intercrystalline cracking

See *intergranular cracking*.

interdendritic corrosion

Corrosive attack that progresses

intergranular

Between crystals or grains. Also called intercrystalline. Contrast with *transgranular*.

intergranular corrosion

Corrosion occurring preferentially at grain boundaries, usually with slight or negligible attack on the adjacent grains. Also called intercrystalline corrosion.

intergranular cracking

Cracking or fracturing that occurs between the grains or crystals in a polycrystalline aggregate. Also called intercrystalline cracking. Contrast with *transgranular cracking*.

intergranular fracture

Brittle fracture of a metal in which the fracture is between the grains, or crystals, that form the metal. Also called intercrystalline fracture. Contrast with *transgranular fracture*.

intergranular stress-corrosion cracking (IGSCC)

Stress-corrosion cracking in which the cracking occurs along grain boundaries.

intermediate electrode

Same as *bipolar electrode*.

internal oxidation

The formation of isolated particles of corrosion products beneath the metal surface. This occurs as the result of preferential oxidation of certain alloy constituents by inward diffusion of oxygen, nitrogen, sulfur, and so forth.

intumescence

The swelling or bubbling of a coating usually because of heating (term currently used in space and fire protection applications).

ion

An atom, or group of atoms, that has gained or lost one or more outer electrons and thus carries an electric charge. Positive ions, or *cations*, are deficient in outer electrons. Negative ions, or *anions*, have an excess of outer electrons.

Ion Erosion

Deterioration of material caused by ion impact.

ion exchange

The reversible interchange of ions between a liquid and solid, with no substantial structural changes in the solid.

iron rot

Deterioration of wood in contact with iron-based alloys.

isocorrosion diagram

A graph or chart that shows constant corrosion behavior with changing solution (environment) composition and temperature.

preferentially along interdendritic paths. This type of attack results from local differences in composition, such as coring commonly encountered in alloy castings.